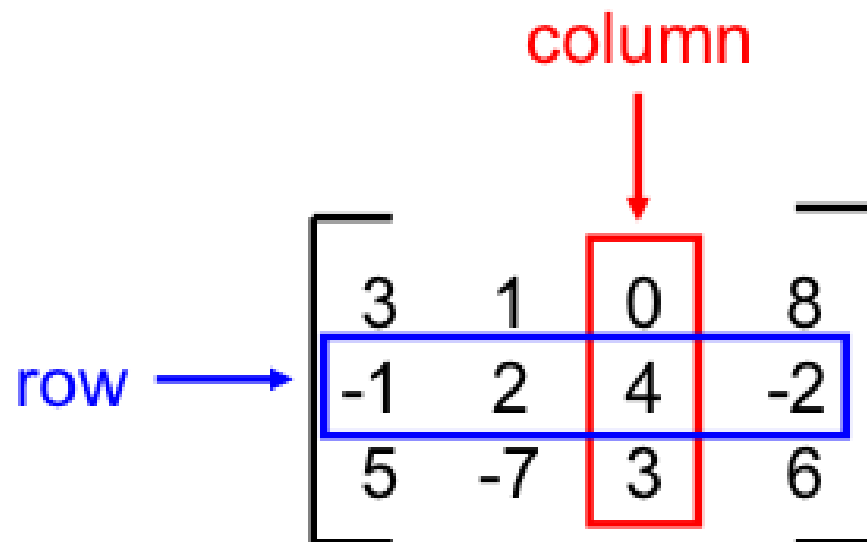


2.4 - Adding and Subtracting Matrices

Matrix: a rectangular arrangement of numbers into horizontal rows and vertical columns

Element: each number in the matrix



The entry in the second row and second column is 2

The size of a matrix

(the number of **rows**) X (the number of **columns**)

column

row

3	1	0	8
-1	2	4	-2
5	-7	3	6

$$\underline{3} \times \underline{4}$$

Ex 1: Write a matrix to organize the CD collection

RAP : 3 groups, 7 solo artists, 0 collections

ROCK : 10 groups, 2 solo artists, 2 collections

COUNTRY: 4 groups, 11 solo artists, 1 collection

$$\begin{bmatrix} 3 & 7 & 0 \\ 10 & 2 & 2 \\ 4 & 11 & 1 \end{bmatrix}$$

Adding Matrices

$$\begin{bmatrix} 3 & 7 \\ -1 & 0 \\ -6 & -5 \end{bmatrix} + \begin{bmatrix} -9 & 2 \\ 4 & -7 \\ 10 & -13 \end{bmatrix}$$

$$= \begin{bmatrix} 3+(-9) & 7+2 \\ -1+4 & 0+(-7) \\ -6+10 & -5+(-13) \end{bmatrix} = \begin{bmatrix} -6 & 9 \\ 3 & -7 \\ 4 & -18 \end{bmatrix}$$

Subtracting Matrices

$$\begin{bmatrix} 3 & 7 \\ -1 & 0 \\ -6 & -5 \end{bmatrix} - \begin{bmatrix} -9 & 2 \\ 4 & -7 \\ 10 & -13 \end{bmatrix}$$

$$= \begin{bmatrix} 3 - (-9) & 7 - 2 \\ -1 - 4 & 0 - (-7) \\ -6 - 10 & -5 - (-13) \end{bmatrix} = \begin{bmatrix} 12 & 5 \\ -5 & 7 \\ -16 & 8 \end{bmatrix}$$

Does $\begin{bmatrix} 5 & -9 \\ -4 & 1 \\ -1 & 4 \end{bmatrix} + \begin{bmatrix} 2 & 8 \\ 1 & 9 \\ -3 & -1 \end{bmatrix} = \begin{bmatrix} 2 & 8 \\ 1 & 9 \\ -3 & -1 \end{bmatrix} + \begin{bmatrix} 5 & -9 \\ -4 & 1 \\ -1 & 4 \end{bmatrix}$? Explain

$$\begin{bmatrix} 7 & -1 \\ -3 & 10 \\ -4 & 3 \end{bmatrix} = \begin{bmatrix} 7 & -1 \\ -3 & 10 \\ -4 & 3 \end{bmatrix}$$

Does the commutative property of addition apply to matrices?

YES

Homework: p.89 #2-24 even